6-601.24 1015

Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

SEP 25 1997

DOE-1473-97

Mr. Michael H. Murphy
U.S. EPA, Region V
Air and Radiation Division
77 W. Jackson Blvd.
AE-17J
Chicago, Illinois 60604-3590

Dear Mr. Murphy:

40 CFR 61, NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS SUBPART Q NOTIFICATION

This letter was written as a follow-up to the discussions with the U.S. Environmental Protection Agency (U.S. EPA) on August 29, 1997. The following provides written notification to the U.S. EPA as required by the Federal Facility Agreement (FFA) of an existing, but newly discovered, source of radon-222 that contains radium-226 in sufficient concentrations to potentially emit radon-222 in excess of the 40 CFR 61, National Emission Standards for Hazardous Air Pollutants (NESHAP) SUBPART Q standard.

This source is a tank, F1-320, located outside at the northwest corner of the Hot Raffinate Building (Building 3E). The tank is located above the K-65 Trench and is called the K-65 Decant Tank. The tank is 13 feet in height and 11 feet in diameter and is conical at the bottom. A manway at the top of the tank was open and probably had been for 30 to 40 years; however, the manway was covered again as of August 29, 1997.

Safe Shutdown Program (programmatic part of Operable Unit 3 (OU3) Final Record of Decision (ROD)) is responsible for the removal of holdup materials from equipment, tanks, lines, and other activities to place buildings in a safe configuration for dismantling. One of the first activities completed by Safe Shutdown when they enter a facility is to perform a nondestructive assay analysis on equipment, tanks, pipes, etc., to verify that no radioactive materials have been left behind. Originally, Tank F1-320 was listed as empty, but, when a nondestructive assay was performed on the tank, the instrument indicated that material was still left in the cone-shaped bottom of the tank. Based on an estimated height of the material in the tank of 2 feet and a presumed material density of 100 lbs/ft^3, the weight of

the material inside the tank was calculated to be 6335.5 pounds. A grab sample of the material was taken and the analytical results showed the following:

Radium-226:	2600 pCi/g
Thorium-228:	19 pCi/g
Thorium-230:	670 pCi/g
Thorium-232:	15 pCi/g
Uranium:	8.8%
Uranium-235:	0.73%

Based on the above radium-226 concentration, a conservative estimate was made on August 26, 1997, of the radon flux rate coming from the material inside the tank. The flux rate was calculated to be 535 $pCi/m^2/sec$ based on a conservative assumption that the material was dry. A radon progeny grab sample was taken of the headspace inside the tank and the results showed 1.04 Working Levels or approximately 3 Derived Air Concentration (DAC) which equates to a radon-222 concentration of 100 pCi/l to 200 pCi/l depending on the equilibrium assumed between radon and its progeny.

After a new source of radon-222 that potentially exceeds the SUBPART Q standard is discovered, the FFA outlines a series of requirements which are designed to quantify and then remediate the newly discovered source. Since the radon-222 source inside Tank F1-320 was discovered during the remediation process, the requirements outlined in the FFA are not needed.

Safe Shutdown began removing the material from Tank F1-320 on September 3, 1997, and completed the task on September 12, 1997. Prior to starting the material removal operations, an enclosure ventilated via a High Efficiency Particulate Air (HEPA) filtration unit was installed to provide containment for the removal operations. The material was removed from the tank by a HEPA-filtered vacuum system and by manually shoveling. Workers wore full doubled anticontamination clothing and a full-face respirator while working inside the ventilated enclosure and inside the tank. Air samples were taken inside the ventilated enclosure and inside the tank to ensure workers were properly protected. A total of 8,695 pounds of material was removed and placed into twenty-six 55-gallon drums.

As the material was transferred into drums, a sample of the material was taken. The samples were submitted to be analyzed for Resource Conservation and Recovery Act (RCRA) metals, total metals, and percent moisture. The results of the analysis will determine the proper storage and final disposition of the material. The twenty-six drums are currently being temporarily staged outside on pallets near the area of Tank F1-320 east of the Hot Raffinate Building. Air samples have been taken in the area where the drums are being staged and no worker protection is necessary if working near the drums. We anticipate receiving the analytical results on the drum samples in about two weeks and will contact you once a decision is made on the appropriate storage location.

If you have any questions or need further documentation, please contact John H. Trygier at (513) 648-3154.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Trygier

cc:

N. Akgunduz, DOE-FEMP
K. Nickel, DOE-FEMP
J. Sattler, DOE-FEMP
J. Saric, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton
J. B. Bradburne, FDF/52-3
L. Goidell, FDF/65-2
T. Hagen, FDF/65-2
J. Jameson, FDF/24
J. Lester, FDF/52-3
M. Morris, FDF/52-9
R. Nichols, FDF/44
C. L. Turner, FDF/44
T. Walsh, FDF/65-2
M. West, FDF/35-1
AR Coordinator, FDF/78